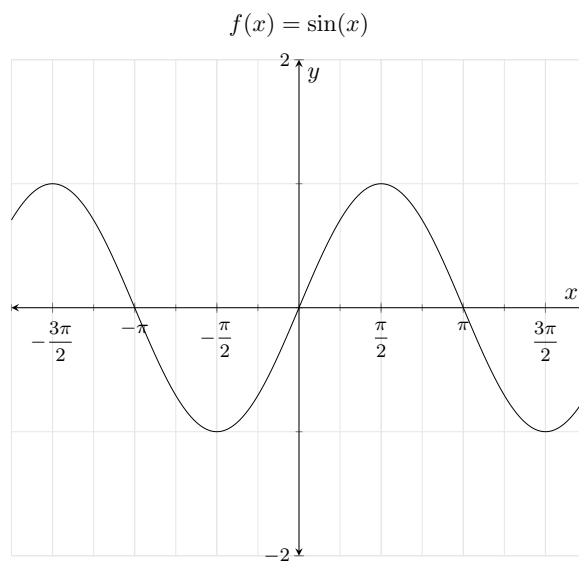


Exercise 1 Let $f(x) = \sin(x)$. The following information about the sine function may be helpful.



Important Values of $f(x) = \sin(x)$	
x	$f(x)$
$-\pi$	0
$-\frac{\pi}{2}$	-1
0	0
$\frac{\pi}{2}$	1
π	0
$\frac{3\pi}{2}$	-1
2π	0

(a) Compute $AV_{[-\pi, \frac{3\pi}{2}]}$. Give an exact answer.

$$AV_{[-\pi, \frac{3\pi}{2}]} = \boxed{-\frac{2}{5\pi}}.$$

(b) Based on your answer above, the sine function is

Multiple Choice:

- (i) *increasing on the interval $\left[-\pi, \frac{3\pi}{2}\right]$.*
 - (ii) *decreasing on the interval $\left[-\pi, \frac{3\pi}{2}\right]$.*
 - (iii) *constant on the interval $\left[-\pi, \frac{3\pi}{2}\right]$.*
 - (iv) *increasing on average on the interval $\left[-\pi, \frac{3\pi}{2}\right]$.*
 - (v) *decreasing on average on the interval $\left[-\pi, \frac{3\pi}{2}\right]$. ✓*
 - (vi) *constant on average on the interval $\left[-\pi, \frac{3\pi}{2}\right]$.*
- (c) Compute $AV_{[0, 2\pi]}$.
- $AV_{[0, 2\pi]} = \boxed{0}$.
- (d) *Based on your answer above, the sine function is*

Multiple Choice:

- (i) *increasing on the interval $[0, 2\pi]$.*
 - (ii) *decreasing on the interval $[0, 2\pi]$.*
 - (iii) *constant on the interval $[0, 2\pi]$.*
 - (iv) *increasing on average on the interval $[0, 2\pi]$.*
 - (v) *decreasing on average on the interval $[0, 2\pi]$.*
 - (vi) *constant on average on the interval $[0, 2\pi]$. ✓*
-